

REMARKS

After entry of the above amendments, 21-38 will be pending in the present application. Claims 1-20 have been cancelled. New claims 21-38 have been added. Support for the new claims can be found, for instance, in the claims as originally filed and in the specification. Applicant reserves the right to pursue any of the cancelled claims in a continuation application. No new matter has been added.

§ 101 / § 112 Rejections

Previously pending claims 1-7 were rejected under 35 U.S.C. §§ 101 and 112. The Office action states:

Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Lacking any specification in the disclosure the term “computer readable medium” is sufficiently broad as to include the non-statutory subject area of signals embodied in a transmission medium.

(April 21, 2006 Office action, pg. 3). The Office action also states:

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-7 recite the limitation a “computer readable medium,” yet this term does not have any basis in the specification.

(April 21, 2006 Office action, pg. 2)

Applicant respectfully disagrees with the Office action’s assertions that the term “computer readable medium” needs to be taught in the specification. One of skill in the art will readily understand the meaning and scope of the term “computer readable medium.” Further,

“computer readable medium” claims are recognized as an accepted type of claim, similar to “method,” “system,” and “device” claims. Specifically, MPEP § 2106 states:

[A] claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program’s functionality to be realized, and is thus statutory.

(M.P.E.P. § 2106.IV.B.1(a), 8th ed., 4th rev.)

Therefore, based at least on the reasons above, Applicant respectfully submits that new claims 27-32, which recite a “computer readable medium including a computer readable program for preserving an original schema of a table comprising a plurality of rows,” are directed to statutory subject matter under 35 U.S.C. § 101 and satisfy the requirements under 35 U.S.C. § 112.

§ 102 Rejections

Previously pending claims 1-20 were rejected under 35 U.S.C. § 102(b) as being anticipated by the public use or sale of Oracle 8i.

New claim 21 recites “making each of the one or more inserted or updated rows a self-describing row by storing metadata describing the new schema in the row.” The Office action states:

Claim 5 is anticipated by Oracle 8i as in claim 4, further including: e) updating row in the table; and f) converting the updated row into a self-describing row, wherein the table definition defined by a most recent schema change is stored in metadata associated with the updated row in the table (Oracle 8i Backup and Recovery Guide, chapter 3, page 15, § Perform Backups Frequently and Regularly, ¶ 1, bullet 3J).

(April 21, 2006 Office action, pgs. 4-5).

The cited passage of the Oracle 8i Backup and Recovery Guide states:

Frequent backups are essential for any recovery scheme. Base the frequency of backups on the rate or frequency of database changes such as:

- Addition and deletion of tables.
- Insertions and deletions of rows in existing tables.
- Updates to data within tables.

If users generate a significant amount of DML, database backup frequency should be proportionally high. Alternatively, if a database is mainly read-only, and updates are issued only infrequently, you can backup the database less frequently.

Use either Recovery Manager or O/S methods to create backup scripts. RMAN scripts, which are stored in the recovery catalog, are an especially efficient method for performing routine, repetitive backup operations.

(Oracle 8i Backup and Recovery Guide, ch. 3, pg. 15).

As seen from above, there is no mention of making a row into a “self-describing row,” as recited in claim 21 or previously pending claim 5. In fact, the term “self-describing row” cannot be found anywhere in the passage. Further, there is no mention of storing metadata describing the schema of a row in the row.

Therefore, based at least on the reasons above, Applicant respectfully submits that claim 21, and the claims that depend therefrom, are not anticipated by the public use or sale of Oracle 8i. Since claims 27 and 33 each recites elements similar to those of claim 21, it is respectfully submitted that those claims, and the claims that depend therefrom, are not anticipated by the public use or sale of Oracle 8i for at least the same reasons.

New claim 22, which depends from claim 21, recites “rebuilding the table using a valid backup copy of the table, wherein, when a row of the valid backup copy is self-describing, metadata stored in the row is used to rebuild a corresponding row of the table and wherein, when

the row of the valid backup copy is not self-describing, the original schema stored in the designated table is used to rebuild the corresponding row of the table.” The Office action states:

Claim 6 is anticipated by Oracle 8i as in claim 5, further including: g) rebuilding the table during a data recovery process by g1) utilizing a valid backup copy of the table ([Oracle 8i Concepts, chapter 32, pages 5-6, § Database Backups]); g2) applying the original table schema stored in the designated table to a row in the valid backup copy of the table if the row is not a self-describing row (Oracle 8i Concepts, chapter 32, page 7, § Control Files)); and g3) applying the table definition stored in the metadata associated with the row if the row is a self-describing row ([Oracle 8i Concepts, chapter 32 [sic], page 41, § Application of Incremental Backups and Redo Records, ¶ 1] if the incremental backup is found then all necessary metadata is present).

(April 21, 2006 Office action, pg. 5).

The first passage cited by the Office action states:

A database backup consists of backups of the physical files (all datafiles and a control file) that constitutes an Oracle database. To begin media recovery after a media failure, Oracle uses file backups to restore damaged datafiles or control files. Replacing a current, possibly damaged, copy of a database file, tablespace, or database with a backup copy is called *restoring* that portion of the database.

Oracle offers several options in performing database backups, including

- Recovery Manager
- operating system utilities
- Export utility
- Enterprise Backup utility

(Oracle 8i Concepts, ch. 32, pgs. 5-6).

The second passage cited by the Office action states:

In general, the control file(s) of a database store the status of the physical structure of the database. Certain status information in the control file (for example, the current online redo log file, the names of the datafiles, and so on) guides Oracle during instance or media recovery.

(Oracle 8i Concepts, ch. 32, pg. 7).

The third passage cited by the Office action states:

If RMAN has a choice between applying an incremental backup or applying redo to the restored datafiles, then it always chooses to use the incremental backup. If over-lapping levels of incremental backup are available, then RMAN automatically chooses the one covering the longest period of time.

If RMAN cannot find an incremental backup, it looks for an archived redo log. Whenever ARCH archives a redo log, Oracle immediately records it in the control file. Recovery Manager propagates that information into the recovery catalog during resynchronization, classifying archived redo logs as image copies. Use the list command to display them.

During recovery, RMAN looks for the appropriate archived redo logs in the default locations specified in the parameter file. If it cannot find them anywhere on disk, it looks in backup sets and restores archived redo logs as needed to perform the media recovery.

By default, RMAN restores the archived redo logs to the current log archive destination specified in the init.ora file. Use the set archivelog destination command to specify a different restore location.

(Oracle 8i Backup and Recovery Guide, ch. 4, pgs. 41-42).

Although the above cited passages discuss data recovery, they do not disclose, teach, or suggest, differentiating between “self-describing” and “not self-describing” rows to decide between using metadata stored in a row or original schema stored in a designated table to rebuild the table. In addition, as with the other passage cited in the Office action, the terms “self-describing” and “metadata” cannot be found anywhere. Hence, Applicant respectfully disagrees with the Office action summarily concluding that “if the incremental backup is found then all necessary metadata is present.”

Further, Applicant respectfully submits that the issue is not whether metadata is present, but where the metadata is located. The passages relating to Oracle 8i cited by the Office action do not disclose, teach, or suggest that the metadata describing the schema of a row is stored in the row.

Therefore, based at least on the additional reasons above, Applicant respectfully submits that claim 22, and the claims that depend therefrom, are further not anticipated by the public use or sale of Oracle 8i. Since claims 28 and 34 each recites elements similar to those of claim 22, it is respectfully submitted that those claims, and the claims that depend therefrom, are further not anticipated by the public use or sale of Oracle 8i for at least the same reasons.

New claim 24, which depends from claim 21, recites “removing the original schema of the table from the designated table responsive to all of the rows in the table being self-describing.” The Office action states:

Claim 7 is anticipated by Oracle 8i as in claim 3, further including: d) removing from the designated table the original table schema for the table if each row in the table is self-describing ([Oracle 8i Backup and Recovery Guide, chapter 4, page 18, § Reports on Backups, Copies, and Database Schema, ¶ 3]).

(April 21, 2006 Office action, pg. 5).

The cited passage states:

The report command lists backup sets and datafile copies that can be deleted either because they are redundant or because they are unrecoverable. A datafile is considered *unrecoverable* if an unrecoverable operation has been performed against an object residing in the datafile subsequent to the last backup

(Oracle 8i Backup and Recovery Guide, ch. 4, pg. 18).

The passage, however, only generally discusses deletion of datafiles. It does not disclose, teach, or suggest removing a schema in response to “all of the rows in the table being self-describing,” as recited in claim 24. As with the previous cited passages, there is no mention of “self-describing” rows anywhere.

Accordingly, based at least on the additional reasons above, Applicant respectfully submits that claim 24 is further not anticipated by the public use or sale of Oracle 8i. Since claims 30 and 36 each recites elements similar to those of claim 24, it is respectfully submitted that those claims are further not anticipated by the public use or sale of Oracle 8i for at least the same reasons.

CONCLUSION

On the basis of the above remarks, reconsideration and allowance of the claims is believed to be warranted and such action is respectfully requested. If the Examiner has any questions or comments, the Examiner is respectfully requested to contact the undersigned at the number listed below.

Respectfully submitted,
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